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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/594,568

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Ralph Edmund Harris

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EXAMINER

DITRANI, ANGELA M

ART UNIT

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3676

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/594,568	Applicant(s) HARRIS ET AL.	
	Examiner Angela M. DiTrani	Art Unit 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 41-75 is/are pending in the application.
- 4a) Of the above claim(s) 68-75 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 41-67 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☒ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>09/27/06,01/08/07,05/31/07,08/20/07.</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Election/Restrictions

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 41-67, drawn to a process for disrupting filter cake in an underground formation.

Group II, claim(s) 68-74, drawn to a process for preventing damage to screen and underground equipment.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The claims of Group I correspond to the technical feature of injecting a treatment fluid into the formation while the claims of Group II correspond to the technical feature of placing a coating on a piece of equipment prior to placing the equipment in the underground formation.

3. During a telephone conversation with Arthur Crawford on 03/06/08 a provisional election was made without traverse to prosecute the invention of I, claims 41-67.

Affirmation of this election must be made by applicant in replying to this Office action.

Claims 68-74 are withdrawn from further consideration by the examiner, 37

CFR 1.142(b), as being drawn to a non-elected invention.

4. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Priority

5. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Great Britain on 03/27/04. It is noted, however, that applicant has not filed a certified copy of the foreign application No. 0406993.6 as required by 35 U.S.C. 119(b).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 48 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. The terminology of "incorporated into the solid polymer by dissolution or dispersion" with respect to the one or more other materials, chemicals, catalysts or enzymes in claim 48 is indefinite. It is not clear what is meant by the phrase; are the materials, chemicals, catalysts or enzymes dispersed within the solid polymer?

Claim Rejections - 35 USC § 102

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 41-51 and 59-64 are rejected under 35 U.S.C. 102(e) as being anticipated by Willberg et al. (US 7,265,079).

With respect to claim 41, Willber et al. discloses a process for disrupting filter cake in an underground formation, which process comprises: (i) incorporating into a treatment fluid a solid polymer capable of being converted by hydrolysis into one or more organic acids; (ii) introducing the treatment fluid into the underground formation; and (iii) allowing the solid polymer to hydrolyze in the presence of water to produce organic acid such that acid soluble material within the filter cake or adjacent formation is dissolved (see entire disclosure, esp. col. 2, line 53-col. 3, line 4; col. 5, lines 22-35).

With respect to depending claims 42-46, the reference teaches the solid polymer as claimed (see col. 2, line 53-col. 4, line 12).

With respect to depending claims 47-49, the reference teaches one or more other materials, chemicals, catalysts or enzymes incorporated into the solid polymer by encapsulation to allow their controlled release coincident with or after acid production,

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and further wherein said one or more other materials, chemicals, catalysts or enzymes are incorporated into the solid polymer by dissolution or dispersion to allow controlled release coincident with acid production and wherein said one or more other materials from the solid polymer have functional activity for filter cake treatment or as production chemicals (see esp. col. 3, lines 34-36; col. 4, lines 41-61).

With respect to depending claim 50, the reference teaches the solid polymer used in the form as claimed (see col. 4, lines 41-44).

With respect to depending claim 51, the reference teaches incorporating a buffer into the treatment fluid (see col. 3, lines 34-36).

With respect to depending claims 59-64, the reference teaches the gravel packing fluid comprising one or more solid polymers; the disruption or degradation of at least a portion of the filter cake and increases the permeability of the formation; the portion of the polymer remaining in the underground formation and continuously releasing organic acid and production chemical during hydrocarbon production or water injection until the polymer has completely hydrolyzed; the formation containing a hydrocarbon or water and the process further comprising recovering a hydrocarbon or water; the treatment fluid introduced into the formation via a well bore which extends to the formation; and wherein the treatment fluid comprises an acid sensitive viscosifying agent and wherein the viscosity of the fluid is reduced by the acid generated by hydrolysis of the solid polymer (see esp. col. 2, lines 23-44; col. 7, lines 1-41).

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 52-58 and 65-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Willberg et al. as applied to claim 41 above, and further in view of Harris et al. (WO 01/02698).

With respect to depending claims 52-57, Willberg et al. discloses the method as stated above with respect to claim 41. The reference, however, fails to teach the process wherein the treatment fluid further comprises one or more polymer breakers, wherein the polymer breaker is a hydrolase enzyme; a polysaccharide hydrolyzing enzyme; an enzyme which can hydrolyze starch, xanthan, cellulose, guar, scleroglucan, or succinoglycan; and an oxidant, wherein the oxidant is further selected from the group

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as claimed. Harris et al. teaches a method of treating an underground reservoir wherein an ester that has hydrolyzed to produce an organic acid is employed for the purpose of dissolving acid soluble material present within the reservoir, such as that which is present within a filter cake; the ester may be combined with a suitable polymer breaker, including a polymer breaker enzyme, such as a polysaccharide degrading enzyme or an oxidative breaker, selected from a group including persulphates, peroxides, perborates, and percarbonates, for the purpose degrading polymers within polysaccharide thickened compositions, thereby reducing viscosity, as well as for the purpose of disrupting filter cakes; the addition of the breaker to the treatment fluid comprising the ester enhances the effectiveness of the disclosed treatment operation (see p. 7, line 12- p. 11, line 19). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to provide for the inclusion of a polymer breaker, such as an enzyme or oxidant as taught by Harris et al. within the method and composition of Willberg et al. in order to enhance the effectiveness of the filter cake destruction by including an additional polymer breaking compound therein.

With respect to depending claim 58, Willberg et al. further fails to teach wherein the polymer breaker is in the form of a delayed release preparation. Harris et al. teaches delayed release preparations with oxidants, enzymes and catalysts, wherein such methods are well known by those skilled in the art (p. 13, lines 4-5). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to further provide for the polymer breaker of Harris et al. within the method of

Willberg et al. wherein the polymer breaker is in the form of a delayed release preparation.

With respect to depending claim 65, Willberg et al. discloses the method as stated above wherein the acid generated in the self-destruction process may function as a breaker for synthetic polymer and biopolymer viscosifying agents. The reference, however, fails to explicitly teach the method wherein the viscosifying agent is a borate crosslinked guar gum. Harris et al. teaches the use of acids for the purpose of breaking acid viscosified gels, such as a crosslinked guar-borate gel, used in oilfield applications (p. 2, lines 15-17). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the self-destructive acid producing composition of Willberg et al. in order to achieve the predictable result of breaking a viscosified gel comprising a crosslinked guar-borate gel.

With respect to depending claim 66, Willberg et al. discloses the method as stated above with respect to claim 41. The reference, however, fails to teach the treatment fluid further comprising calcium peroxide wherein the organic acid produced by hydrolysis of the solid polymer leads to the generation of hydrogen peroxide. Harris et al. teaches the inclusion of calcium peroxide within an organic acid producing treatment fluid for the purpose of generating hydrogen peroxide under acidic conditions; the development of acidic conditions within the wellbore upon the hydrolysis of the organic acid activates the decomposition of the calcium peroxide, thereby enhancing the activity of the polymer breaker (see p. 9, line 31-col. 10, line 4). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was

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made to include calcium peroxide as taught by Harris et al. within the organic acid producing treatment composition of Willberg et al. in order to yield the predictable result of enhancing the polymer breaking activity and destruction of the filter cake therein.

14. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Willberg et al. as applied to claim 41 above and further, in view of Constien (US 6,831,044).

Willberg et al. discloses the method with respect to claim 41 as stated above. The reference, however, fails to teach the treatment fluid further comprising ammonium bifluoride and wherein the organic acid produced by hydrolysis of the solid polymer leads to generation of hydrogen fluoride. Constien teaches an organic acid treatment composition comprising an ester and acid producing material, such as a polyglycolic acid, wherein the acid is preferably a solid at standard conditions; the organic acid may be used in combination with ammonium bifluoride for the purpose of degrading filter cakes with a more effective composition that is used to hydrolyze polysaccharide materials (see col. 7, lines 21-46). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate ammonium bifluoride within treatment composition of Willberg et al. in order to enhance the treatment operation therein.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6,817,414: Lee discloses a method and composition comprising a polymerized alpha-hydroxycarboxylic-acid-coated proppant for use within filter cake removal operations.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. DiTrani whose telephone number is (571)272-2182. The examiner can normally be reached on M-F, 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on (571)272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD
03/11/08

/Zakiya W. Bates/
Primary Examiner, Art Unit 3676